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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/779,379	02/07/2001	Gordon P. Sharp	A0744/7003	7977
23628	7590	11/17/2004	EXAMINER	
WOLF GREENFIELD & SACKS, PC FEDERAL RESERVE PLAZA 600 ATLANTIC AVENUE BOSTON, MA 02210-2211			MASINICK, MICHAEL D	
			ART UNIT	PAPER NUMBER
			2125	
DATE MAILED: 11/17/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/779,379

Applicant(s)

SHARP ET AL.

Examiner

Michael D Masinick

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8, 16-22, 31-44, 70-77, 88, 89, 97-108, 113-115, 118-120 and 150-203 is/are pending in the application.
- 4a) Of the above claim(s) 31-33, 70-77, 97-103, 118-120, 165-168 and 203 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-22 and 160-164 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-8, 34-37, 39-44, 88, 89, 104-108, 113, 150, 152-159, 169-172, 175-177, 179, 181-183, 185-187, 189-190, 192-194, 196-198, 200-201 is/are rejected.
- 7) ☒ Claim(s) 3, 38, 114, 115, 151, 173, 174, 178, 180, 184, 188, 191, 195, 199 and 202 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) •
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

Applicant's amendments render previous rejections moot as the scope of the independent claims has been narrowed to a point where the art previously used is no longer able to be used in a rejection. Applicant's amendments have corrected previously noted 112 problems. All previous rejections are removed, though some new claims have the same previously addressed problems.

### ***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-8, 16-22, 34-44, 88, 89, 104-108, 113-115, 150-164, 169-202, drawn to an expert system for analyzing indoor air quality using, classified in class 700, subclass 28.
  - II. Claim 31-33, 70-77, 97-103, 118-120, 165-168, 203 drawn to a grab sample unit with remote control for determining communications between the sampler and a remote data device, classified in class 73, subclass 31.01.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, inventions are claimed as separate inventions and are never claimed as usable together. Invention I has separate utility such as a simple closed loop air

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quality control system and invention II is dedicated only to samble and grab remote control. See MPEP § 806.05(d).

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Robert Hunt on Nov. 9<sup>th</sup>, 2004 a provisional election was made with traverse to prosecute invention I, claims 1-8, 16-22, 34-44, 88, 89, 104-108, 113-115, 150-164, 169-202. Affirmation of this election must be made by applicant in replying to this Office action. Claims 31-33, 70-77, 97-103, 118-120, 165-168, 203 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 2 recites the limitation "acquired air quality data". There is insufficient antecedent basis for this limitation in the claim as it should read "acquired air quality parameter data".

3. Claims 186, 187, 197, 198 state "the building location". There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 103***

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4-8, 34-37, 39-44, 104-107, 150, 152-154, 156-158, 179, 181-183, 185, 192-194, and 196 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,068,798 to Heath et al in view of U.S. Patent No. 5,510,975 to Ziegler and further in view of "IAQES: An Expert System for Indoor Air Quality Problem Resolution" by Shoom et al which is used exclusively as a teaching reference as a reason to combine the two U.S. Patents.

1. Heath et al shows an indoor air monitoring system, comprising: an air monitoring unit including at least one sensor for acquiring air quality parameter data at an indoor location (Col 2, lines 18-28); and a computer having including a system for controlling the air monitoring unit based at least in part on the acquired air quality parameter data (Col 5, lines 55-65).

2. Heath does not show that the computer system is a rule-based, case-based, or fuzzy logic based expert system which determines a decision for controlling the air monitoring unit.

3. The use of rule based, case based, and fuzzy logic based expert systems is well known. Ziegler shows the use of an in depth expert system for logical operations in a home automation environment. Ziegler shows obtaining information from sensors, inputting these signals to an interface, determining which stored rules are best used, and outputting values according to those rules (Abstract).

4. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the expert system of Ziegler to plan and coordinate the sensor data of Heath

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because of the article titled "IAQES: An Expert System for Indoor Air Quality Problem Resolution" by Shoom et al. Shoom shows the use of a rules based Indoor Air Quality testing procedure where humans input information into a computer program regarding the sensed conditions in and around a building. The expert system program then outputs potential problems and solutions based on the information input and the rules established from a knowledge base. Ziegler shows a well defined expert system that could be configured to be an expert system in the air quality monitoring system of Heath.

5. Regarding claims 2, 153, and 157, Heath shows wherein the expert system is adapted to analyze data from the air monitoring unit based at least in part on the acquired air quality parameter data (Col 2, lines 18-28).

6. Regarding claim 4, Heath shows wherein the expert system is adapted to configure a test to be performed by the air monitoring unit including the location of the test and the time duration for the test (Col 8, lines 7-16).

7. Referring to claims 5, 154, 158, and 196 Ziegler shows wherein the expert system is adapted to provide a recommendation for improving the air quality parameter data (Examiner submits that this is the purpose of the system of Shoom and would be the purpose of Ziegler if Ziegler was modified as suggested above).

8. Referring to claim 6, the computer systems of Heath in view of Ziegler could be implemented on any number of portable laptop computers by one skilled in the art.

9. Referring to claim 7, Heath shows wherein the expert system is provided within the air monitoring unit (Column 5, lines 55-65).

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10. Regarding claims 8, 40, and 41, Heath shows wherein the air monitoring unit includes a program for acquiring the air quality parameter data and the expert system is adapted to modifying/controlling the program (Col 7, lines 37-66).

11. Referring to claim 35, 36, 182, and 193, current computer systems can provide processing power from any location in the world. The computer system used in Heath in view of Ziegler could be implemented on a local laptop as mentioned above or data sent over the via the internet overseas and processed on a CPU there.

12. Regarding claim 37, Heath shows wherein said means for analyzing the acquired air quality data further comprises means for analyzing information representative of the selected indoor location in reaching said conclusion (Col 7, lines 37-66).

13. Referring to claims 39 and 185, making a recommendation is the purpose of an expert system such as the one shown in Heath in view of Ziegler.

14. Referring to claim 42, Examiner notes that a sample is just a sample for a set period of time. Since the sampler alone would not automatically take samples, it must receive this information from some computer source.

15. Referring to claim 43, see rejection of claim 35. The term "easily movable" is vague and can be interpreted in many different ways.

16. Regarding claim 44, Heath shows wherein said air monitoring system comprises an installed system for monitoring air quality in multiple indoor locations (abstract).

17. Referring to claims 104-106, the Shoom article shows a rule bases system based on occupant symptom data, user supplied information, and historical data (Page 128 – "approach").

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18. Referring to claim 107, Ziegler shows wherein the expert system can learn or improve its effectiveness by accepting user feedback on the effectiveness of its conclusions (Paragraph 48).

Examiner notes that this is a well known feature of expert systems.

19. Referring to claim 150, Examiner notes that having the system "installed" does not change the system itself and is open to a wide interpretation.

20. Referring to claim 179, 183, and 194, encryption is a well known data method used in nearly ever computer system currently known. It does not have an effect on the system of the current invention because it would inherently be used for any data transmission between two computers or computer systems over any non-secured network.

21. Claims 88, 89, 155, 159, 175, 189, and 200 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,068,798 to Heath et al in view of U.S. Patent No. 5,510,975 to Ziegler and further in view of "IAQES: An Expert System for Indoor Air Quality Problem Resolution" by Shoom et al and further in view of U.S. Patent No.6,275,942 to Bernhard et al.

22. With reference to what has been shown above, Heath in view of Ziegler does not show wherein the expert system is used at least in part to detect anomalies in the air monitoring unit or to detect data that is tampered or faulty.

23. Bernhard shows a simple method of using an expert system to discover faulty, tampered, or otherwise problematic data (Col 1, line 53 – Col 2, line 34).

24. It would have been obvious to one of ordinary skill to use the data analysis system of Bernhard in the air quality monitoring system of Heath because bad data can be problematic to the operation of any computer control system.



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25. Claim 108, 113, 169-172 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,068,798 to Heath et al in view of U.S. Patent No. 5,510,975 to Ziegler and further in view of "IAQES: An Expert System for Indoor Air Quality Problem Resolution" by Shoom et al and further in view of U.S. Patent No. 5,908,383 to Brynjestad.

26. Heath in view of Ziegler as shown above does not show an, where data mining is used, which uses rule based, case based, fuzzy logic, or pattern recognition methods or where a combination of any two or more of these systems.

27. Brynjestad shows a knowledge based expert system which uses many different methods in order to come up with the best solution. All of the above methods are included in Brynjestad. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the expert system methods of Brynjestad in the expert system of Heath because better problem solutions will be able to be seen at a quicker pace.

28. Claims 176, 177, 190, and 201 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,068,798 to Heath et al in view of U.S. Patent No. 5,510,975 to Ziegler and further in view of "IAQES: An Expert System for Indoor Air Quality Problem Resolution" by Shoom et al and further in view of U.S. Patent No. 5,462,485 to Kinhead.

29. Heath in view of Ziegler as shown above does not show where the air monitoring system has at least a carbon dioxide sensor, a particle sensor, and a humidity sensor.

30. Kinhead shows an air quality monitoring system with each of these sensors.

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31. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the sensors of Kinhead in the expert system of Heath in view of Ziegler because these are common sensors used in the assessment of air quality and are well known in the art.

***Allowable Subject Matter***

32. Claims 16-22, 160-164 are allowed.

33. The following is an examiner's statement of reasons for allowance:

34. While Heath in view of Ziegler as shown above shows an expert system for analyzing air parameter quality data, neither this reference taken alone or in combination with the prior art of record disclose the additions of a database for storing the air quality data and a communications link between a remote data center and the air monitoring unit including a data communication network that is adapted to handle communication between two or more other devices in addition to the communications between the remote data center and the air monitoring unit.. It is this database and communication system as described in the specification, in combination with the remaining elements and features of the invention, that the applicant's invention defines over the prior art of record.

35. Claims 3, 38, 114, 115, 151, 173, 174, 178, 180, 184, 188, 191, 195, 199, 202 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

36. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

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fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

### ***Conclusion***

37. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael D Masinick whose telephone number is (571) 272-3746. The examiner can normally be reached on Mon-Fri, 7:30-4:00.

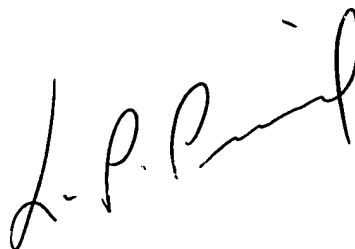
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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MDM

A handwritten signature in black ink, appearing to read "L. P. Picard", written in a cursive style.

LEO PICARD  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100